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AUTHOR	Williams, Margaret M.
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ABSTRACT

The independent and interacting effects of race and poverty on academic achievement were examined for all fourth through sixth grade children attending public neighborhood schools in St. Louis, Missouri between Fall 1968 and Spring 1971. The Iowa Tests of Basic Skills (ITBS) was given at four points in time during this period to a total of 27,465 students. Composite mean ITBS scores were calculated separately for blacks and whites for each poverty group for each point in time. Multiple regression equations were then calculated for each point in time to show the relative weightings of the race and poverty variables as predictors of ITBS scores. The results for each point in time are very similar, the white "least poor" group in any grade being about one school year ahead of the "extremely poor" black group as regards educational achievement. However, when black and white children within a poverty level are compared, differences are much smaller and are negligible or nonexistent for the "poor" group. The poverty variable is four to six times more predictive than the race variable. The close association between achievement and economic level strongly suggests financial education assistance be expanded to include the economic improvement of the families and neighborhoods in which underachieving children live. [This document has been reproduced from the best available copy] (Author/JM)

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RACE, POVERTY AND EDUCATIONAL ACHIEVEMENT IN AN URBAN ENVIRONMENT*

Margaret M. Williams

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Margaret M. Williams
Oak Ridge National Laboratory

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The independent and interacting effects of race and poverty on academic achievement were examined for all 4th through 6th grade children attending public neighborhood schools in St. Louis, Missouri between Fall 1968 and Spring 1971, (N = 27,465). Analysis of grouped data showed that when neighborhood poverty levels were similar there was no practical difference between the achievement of black and white children. Regression analysis of ungrouped data showed that poverty as an independent variable was related to a much larger decrement in achievement than was race.

The results suggest that racial differences in achievement are more related to environmental-economic inequalities than to genetic differences. This suggests that compensatory education for the poor must involve neighborhood and family economic improvement.

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The educational achievement of black children is generally below that of white children. Any discussion of the reasons for this gap must consider black and white economic and social inequalities, and the extent to which these inequalities affect ability differences. However, it is increasingly evident that a simple equating of black and white economic levels is impossible. Blacks earn lower wages than whites for the same occupations (U. S. Department of Labor, 1968), yet they pay higher rents for the same quality housing (Vaughn, 1970). Black families usually live in a much poorer neighborhood as regards physical conditions than white families of the same income level (Clarke, 1971). Therefore, the question of whether black children achieve less because they are black (a genetic interpretation) or because they are deprived environmentally is at yet unanswered. The present study is an attempt to throw some light on this question. The independent and interacting effects of poverty and race on educational achievement were examined for a large sample of urban children. Results indicated that achievement decrements are much more highly related to poverty than to race.

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METHOD

Data

The three sets of data described below were provided by the St. Louis, Missouri Board of Education.[1]

Achievement Data

The Iowa Tests of Basic Skills (ITBS) was given at four points in time (4th grade, Fall 1968; 5th grade, Fall 1969, Spring 1970; 6th grade, Spring 1971) to all public school children in these grades, about 7,000 children on each occasion. (Because of school absenteeism and high mobility rates these occasions do not necessarily represent the same children.)

Race Data

The race mix of each school was given as the percentage of black pupils attending each school. Since children generally attended schools that were either 100% white or over 95% black, school race mix provided an accurate measure of each child's race. Children were classified as black if attending a school where 50% of children were black and vice versa for white.

Poverty Data

The percentage of children in each school neighborhood who received Aid to Dependent Children (ADC) was known and used as an estimate of an

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[1]Through the courtesy of Dr. Gerald Moeller, Director of Research and Evaluation, and Mr. Douglas Benn, Director of Data Processing. All analyses and interpretations are solely the responsibility of the author.

individual child's neighborhood poverty level and thus enabled children to be classified into four poverty groups[2] chosen to provide the most equitable poverty group frequencies.

Analysis

Schools where more than 25% of pupils in grades 4, 5, or 6 were bussed from other neighborhoods were discarded from the analysis, since the neighborhood poverty data might be inapplicable.

Composite mean ITBS scores were calculated separately for blacks and whites for each poverty group for each point in time. Multiple regression equations were then calculated for each point in time to show the relative weightings of the race and poverty variables as predictors of ITBS scores. For the latter calculations the race and poverty variables were ungrouped.

RESULTS

Insert Figure 1 about here

Figure 1 shows that the results for each point in time are very similar, the white "least poor" group in any grade being about one school year ahead of the "extremely poor" black group as regards educational achievement. However, when black and white children within a poverty level

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[2]"Least poor" = 0-14.9% ADC; "Poor" = 15.0-29.9% ADC; "Very poor" = 30.0-44.9% ADC; "Extremely poor" = 45.0-69% ADC.

are compared, differences are much smaller and are negligible or nonexistent for the "poor" group. The detailed results for the 6th grade, Spring 1971 testing, Table 1, show clearly the equitable performance of the black and white "poor" groups.

Insert Table 1 about here

The multiple regression equations for each grade, Table 2, show the poverty variable (P) is 4 to 6 times greater than the race variable (R) as a predictor of ITBS scores.

Insert Table 2 about here

The predicted mean 6th grade achievement for a school where all children are white and none receive ADC would be X = 6.99 since the P and R terms become zero. Predicted mean achievement in another actual school where all children are black (R = 100) and 63% are on ADC (P = 63) would be:

$$X = 6.99 - (.0078 \times 100) - (.049 \times 63) + (.00041 \times 100 \times 63)$$

$$= 6.99 - .78 - 3.09 + 2.60 = 5.72$$

Race accounts for a decrement of about 8 months, "extreme" poverty for a decrement of 3.01 years while the fact that this particular school is both poor and black accounts for an increment of 2.60 years. Thus the overall predicted result is a decrement of 1.27 years of achievement for the 6th grade in this school, compared to 6th graders from an all-white, non-ADC school.

DISCUSSION

The results show a clear relationship between neighborhood economic level and school achievement, irrespective of children's race. The economic level of the "poor" neighborhoods were probably very similar since welfare payments, unlike wages and rents, do not vary with the recipient's race. Children from these neighborhoods, irrespective of whether they were black or white, performed about the same in school. Because of the inequalities in rents, wages, etc., previously documented, the economic level of black "least poor" neighborhoods, where few families are on welfare, was probably below that of white low-welfare neighborhoods. Such economic detriments were reflected in the lower educational achievement of the black children involved. The positive interaction of the race and poverty variables, reflecting an increment in achievement when neighborhoods are both black and poor, may be related to the impact of federally funded Title I assistance. These funds usually go to the poorest schools, which are often the blackest. The close association between achievement and economic level demonstrated in this paper strongly suggests that financial educational assistance be expanded to include the economic improvement of the families and neighborhoods in which underachieving children live.

FIGURE CAPTION

Figure 1. Mean ITBS Composite Scores for 4 Race-Poverty Groups at 4 Points in Time

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Clarke, Margaret M. Black-white ghettos: quality of life in the Atlanta inner city. ORNL-HUD-25, 1971.

U. S. Department of Labor. Income and levels of living. Monthly Labor Review, March 1968, 91, (3), 90-96.

Vaughn, Garrett A. A comparison of white and non-white metropolitan low income housing. Ph. D. Thesis, Duke University Department of Economics, 1970.

TABLE 1

Table 1. Means and Standard Deviations for the 6th Grade Spring 1971 ITBS Scores by Race Mix and Poverty Levels

Race		PERCENT ON ADC 0-14.9 Least Poor	15-29.9 Poor	30-44.0 Very Poor	45-69 Extremely Poor	Total
Black	N	275	1053	1722	1115	4165
	Mean	6.29	6.01	5.84	5.80	5.90
	SD	1.23	1.17	1.09	1.06	1.11
White	N	1802	602	0	0	2404
	Mean	6.71	6.02	0	0	6.54
	SD	1.22	1.11	0	0	1.19

Grand Totals Mean, 6.13; SD, 1.14; N, 6569

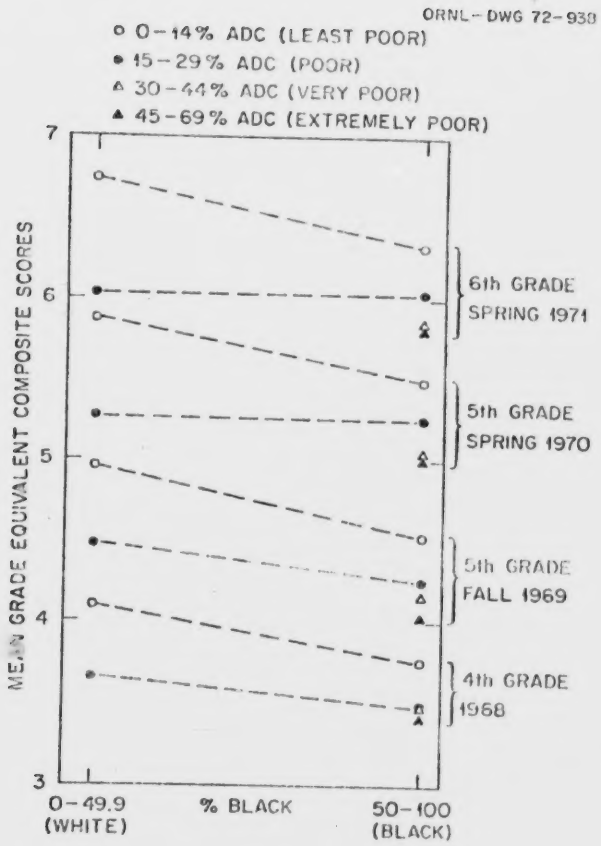
Multiple Regression Equation: $X = 6.99 - .0088R - .049P + .00041PxR$

SD's of Regression Coefficients: .037 .00060 .0032 .000034

Table 2. Race and Poverty as Predictors of ITBS Scores Using the Multiple Regression Technique

GRADE LEVEL	MULTIPLE REGRESSION EQUATION
4th, 1968	$X = 4.3 - .0060R - .028P + .00023PxR$[1]
5th, 1969	$X = 5.1 - .0059R - .025P + .00016PxR$[1]
5th, 1970	$X = 6.09 - .0069R - .036P + .00028PxR$[1]
6th, 1971	$X = 6.99 - .0078R - .049P + .00041PxR$[1]

[1]Using analysis of variance, the PxR interaction was found to be highly significant.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o 0-14% ADC (LEAST POOR)
• 15-29% ADC (POOR)
△ 30-44% ADC (VERY POOR)
▲ 45-69% ADC (EXTREMELY POOR)
MEAN GRADE EQUIVALENT COMPOSITE SCORES
7
6
5
4
3
6th GRADE SPRING 1971
5th GRADE SPRING 1970
5th GRADE FALL 1969
4th GRADE 1968
0-49.9 (WHITE)
% BLACK
50-100 (BLACK)